Texas State Soil and Water Conservation Board
Clean Water Act §319(h) Nonpoint Source Grant Program
FY 2015 Project 15-08

SUMMARY PAGE			
Title of Project	Provide Silvicultural Educational Programs and Technical Assistance to Promote BMP Implementation		
Project Goals	• Improve water quality through increased BMP implementation • Deliver effective education, outreach, and technical assistance • Assess silvicultural BMP implementation • Effectively coordinate project activities and address emerging issues		
Project Tasks	(1) Project Administration; (2) Education, Training, and Outreach; (3) Technical Assistance and Demonstration; (4) Monitoring Forest Operations for BMP Implementation; (5) Stewardship and Water Resource Protection; (6) Collaboration with Local, State, and Regional Partners		
Measures of Success	• Increase in overall BMP implementation • Increase in soil savings and sediment load reductions • Estimate riparian forest conservation resulting from BMP implementation • Conduct 6 workshops per year on BMPs to the forest sector • Successfully implement new technical assistance outreach methods		
Project Type	Implementation (X); Education (X); Planning ( ); Assessment ( ); Groundwater ( )		
Status of Waterbody on *2012 Texas Integrated Report*	Segment ID 0403 0505 0508, 0511 0612 0804G 0901 1221 1804A 1810	Parameter of Impairment or Concern DO Bacteria Bacteria, DO, pH Bacteria Bacteria, DO Bacteria Bacteria Bacteria Bacteria	Category 4a 5a 4a 5b 5b 5c 5b 5c 4b
Project Location (Statewide or Watershed and County)	**Counties**: Anderson, Angelina, Atascosa, Austin, Bandera, Bastrop, Bell, Bexar, Blanco, Borden, Bosque, Bowie, Brazoria, Brazos, Brown, Burleson, Burnet, Caldwell, Callahan, Camp, Cass, Chambers, Cherokee, Coke, Coleman, Colorado, Comal, Comanche, Concho, Coryell, Crockett, Dallas, Delta, De Witt, Eastland, Edwards, Ellis, Erath, Falls, Fannin, Fayette, Fisher, Fort Bend, Franklin, Freestone, Frio, Galveston, Gillespie, Glasscock, Goliad, Gonzales, Gregg, Grimes, Guadalupe, Hamilton, Hardin, Harris, Harrison, Hays, Henderson, Hill, Hood, Hopkins, Houston, Howard, Hunt, Irion, Jackson, Jasper, Jefferson, Johnson, Jones, Karnes, Kaufman, Kendall, Kerr, Kimble, Kinney, Lamar, Lampasas, Lavaca, Leon, Lee, Liberty, Limestone, Llano, Madison, Marion, Mason, Matagorda, McClennan, McCulloch, Medina, Menard, Milam, Mills, Mitchell, Montgomery, Morris, Nacogdoches, Navarro, Newton, Nolan, Orange, Palo Pinto, Panola, Parker, Polk, Rains, Reagan, Real, Red River, Robertson, Rockwall, Runnels, Rusk, Sabine, San Augustine, San Jacinto, San Saba, Schleicher, Scurry, Shackelford, Shelby, Smith, Somervell, Stephens, Sterling, Sutton, Tarrant, Taylor, Titus, Tom Green, Travis, Trinity, Tyler, Upshur, Uvalde, Val Verde, Van Zandt, Victoria, Walker, Waller, Washington, Wharton, Williamson, Wilson, Wood, Zavala		

Project Location (Statewide or Watershed and County)	**Watersheds**; Amistad Reservoir, Aransas Bay, Atascosa, Austin-Oyster, Austin-Travis Lakes, Beals, Bois D'arc-Island, Bosque, Brady, Buchanan-Lyndon B. Johnson, Buffalo-San Jacinto, Caddo Lake, Cedar, Central Matagorda Bay, Chambers, Cibola, Colorado Headwaters, Concho, Cowhouse, Denton, Double Mountain Brazos Fork, Dry Devils, East Fork San Jacinto, East Fork Trinity, East Galveston Bay, East Matagorda Bay, East San Antonio Bay, Elm-Sycamore, Elm Fork Trinity, Hondo, Howard Draw, Hubbard, Jim Ned, Johnson Draw, Lake Fork, Lake O' the Pines, Lampasas, Lavaca, Leon, Little, Little Cypress, Llano, Lower Angelina, Lower Brazos, Lower Brazos – Little Brazos, Lower Colorado, Lower Colorado-Cummings, Lower Devils, Lower Frio, Lower Guadalupe, Lower Neches, Lower Nueces, Lower Pecos, Lower Sabine, Lower San Antonio, Lower Sulphur, Lower Trinity, Lower Trinity-Kickapoo, Lower Trinity-Tehuacana, Lower West Fork Trinity, Lozier Canyon, Medina, Middle Brazos-Lake Whitney, Middle Brazos-Palo Pinto, Middle Colorado, Middle Colorado-Elm, Middle Concho, Middle Guadalupe, Middle Neches, Middle Sabine, Mission, Mustang Draw, Navasota, Navidad, North Bosque, North Concho, North Galveston Bay, North Llano, Nueces Headwaters, Pecan Bayou, Pedernales, Pine Island Bayou, Richland, Sabine Lake, San Bernard, San Gabriel, San Marcos, San Miguel, San Saba, South Concho, South Llano, Spring, Sulphur Headwaters, Sulphur Springs Draw, Toledo Bend Reservoir, Turkey, Upper Angelina, Upper Clear Fork Brazos, Upper Colorado, Upper Devils, Upper Frio, Upper Guadalupe, Upper Neches, Upper Nueces, Upper Sabine, Upper San Antonio, Upper Trinity, Upper West Fork Trinity, Village, West Fork San Jacinto, West Galveston Bay, West Matagorda Bay, West Nueces, West San Antonio Bay, White Oak Bayou, Yegua					
Key Project Activities	Hire Staff (X); Surface Water Quality Monitoring ( ); Technical Assistance (X); Education (X); Implementation (X); BMP Effectiveness Monitoring ( ); Demonstration (X); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )					
2012 Texas NPS Management Program Reference	• Component 1- LTG 1, 2, 3,7 • Component 1 – STG A, B, C, D • Component 2, 3, 6					
Project Costs	Federal	$459,198	Non-Federal	$327,141	Total	$786,339
Project Management	• Texas A&M Forest Service					
Project Period	October 1, 2015 – December 31, 2018					

Part I – Applicant Information

Applicant							
Project Lead	Hughes Simpson						
Title	Program Coordinator, Water Resources and Ecosystem Services						
Organization	Texas A&M Forest Service						
E-mail Address	hsimpson@tfs.tamu.edu						
Street Address	200 Technology Way, Suite 1281						
City	College Station	County	Brazos	State	TX	Zip Code	77845
Telephone Number	979-458-6650			Fax Number	979-458-6655		

Project Partners	
Names	Roles & Responsibilities
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities and ensure coordination of activities with related projects and TCEQ.
Texas A&M Forest Service (TFS)	Provide leadership and direction for overall project implementation, management, administration, and coordination of activities with partners.
Texas Forestry Association (TFA)	Assist with education, training, provide framework for organization of cooperators, provide communication within forestry community
Texas Logging Council (TLC)	Assist with education and training, support program efforts
Texas Rural Water Association (TRWA)	Assist with education, support program efforts

Part II – Project Information

Project Type							
Surface Water	X	Groundwater					
Does the project implement recommendations made in (a) a completed WPP, (b) an adopted TMDL, (c) an approved I-Plan, (d) a Comprehensive Conservation and Management Plan developed under CWA §320, (e) the *Texas Coastal NPS Pollution Control Program*, or (f) the *Texas Groundwater Protection Strategy*?				Yes	X	No	
If yes, identify the document.	Lake O' The Pines TMDL Implementation Plan Adams and Cow Bayou TMDL Plum Creek WPP Leon River WPP Lampasas River WPP Geronimo Creek WPP Upper Llano River WPP (Draft)						
If yes, identify the agency/group that developed and/or approved the document.	Lake O' the Pines – NETMWD/TCEQ Adams and Cow Bayou – SRA/TCEQ Plum Creek WPP – TAES/TSSWCB Leon River WPP – BRA/TSSWCB Geronimo Creek WPP – GBRA/TSSWCB Lampasas River WPP – Texas A&M AgriLife Extension/TSSWCB			Year Developed	2006/2008 2007 2008 2012 2012 2013		

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2012 IR	Size (Acres)
Lake O' The Pines	111403050401, 111403050405, 111403060101	0403	4a	157,313
Sabine River Basin	120100020405, 120100020506, 120100020601, 120100020603, 120100020608, 120100020706, 120100020902, 120100020906, 120100021003, 120100021010	0505	5a	284,209
Adams and Cow Bayou	120100051400, 120100051301, 120100051302	0508 0511 0511	4a 4a 4a	319,770
Attoyac Bayou	120200050301, 120200050307, 120200050401, 120200050406, 120200050501	0612	5b	205,032

Middle Trinity River Basin	120301050401, 120301050410, 120301050501, 120301050504, 120301070101, 120301070111, 120301070201, 120301070206, 120301070301, 120301070312, 120301080101, 120301080110, 120301080201, 120301080206, 120301080301, 120301080306, 120301080401, 120301080407, 120301090101, 120301090108, 120301090201, 120301090207, 120301090301, 120301090308, 120301090401, 120301090407, 120302010101, 120302010110, 120302010201, 120302010208, 120302010301, 120302010305, 120302010401, 120302010406, 120302010501, 120302010506, 120302010601, 120302010605, 120302010701, 120302010707, 120302020101, 120302020104, 120302020201, 120302020203, 120302020301, 120302020308, 120302020401, 120302020409, 120302020501, 120302020507, 120302020601, 120302020604,	0804G	5b	498,823

Cedar Bayou	120402030101, 120402030105	0901 0902	5c .	134,782
Lampasas River	120702030101, 120702030509	1217 1217A 1217B 1217C	5c	839,800
Plum Creek	121002030401, 121002030407, 121002030409, 121002030410	1810	4b	213,830
Geronimo Creek	121002020110, 121002020111	1804A	5c	44,152
Upper Llano River	120902020101, 120902020109, 120902020201, 120902020208, 120902020301, 120902020306, 120902030101, 120902030108, 120902030201, 120902030206, 120902030301, 120902030305, 120902030401, 120902030405,	1415-05 1415-06	1 1	510,148
Leon River	120702010501, 120702010509, 120702010601, 120702010605, 120702010701, 120702010705, 120702010801, 120702010806, 120702010901, 120702010908, 120702011002	1221	5b	886,277

\Water Quality Impairment

Describe all known causes (i.e., pollutants of concern) and sources (e.g., agricultural, silvicultural) of water quality impairments or concerns from any of the following sources: *2012 Texas Integrated Report*, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

2012 Texas Integrated Report

SegID: 0201A Mud Creek (unclassified water body)
From the confluence of the Red River to the upstream perennial portion of the stream northwest of De Kalb in Bowie County

depressed dissolved oxygen 5b 2006

SegID: 0302 Wright Patman Lake
From Wright Patman Lake Dam in Bowie/Cass County to a point 1.5 kilometers (0.9 miles) downstream of Bassett Creek in Bowie/Cass County, up to the normal pool elevation of 225 feet (impounds the Sulphur River)

depressed dissolved oxygen 5c 1996

SegID: 0303B White Oak Creek (unclassified water body)
From the confluence of the Sulphur River north of Naples in Morris County to the upstream perennial portion of the stream east of Sulphur Springs in Hopkins County

depressed dissolved oxygen 5b 2000

SegID: 0401 Caddo Lake
From the Louisiana State Line in Harrison/Marion County to a point 12.3 km (7.6 miles) downstream of SH 43 in Harrison/Marion County, up to pool elevation of 168.5 feet (impounds Big Cypress Creek)

depressed dissolved oxygen 5c 2000

SegID: 0401A Harrison Bayou (unclassified water body)
From the confluence of Caddo Lake east of Karnack in Harrison County to the upstream perennial portion of the stream east of Marshall in Harrison County

depressed dissolved oxygen 5b 2000

SegID: 0402 Big Cypress Creek Below Lake O' the Pines
From a point 12.3 km (7.6 miles) downstream of SH 43 in Harrison/Marion County to Ferrell's Bridge Dam in Marion County

depressed dissolved oxygen 5b 2010

SegID: 0402A Black Cypress Bayou (unclassified water body)
Perennial stream from the confluence with Big Cypress in Marion County up to 7.5 miles above FM 250 in Cass County.

depressed dissolved oxygen 5b 2000

SegID: 0403 Lake O' the Pines
Water body location: From Ferrell's Bridge Dam in Marion County to a point 1.0 km (0.6 miles) downstream of US 259 in Morris/Upshur County, up to normal pool elevation of 228.5 feet (impounds Big Cypress Creek)

Depressed dissolved oxygen 4a 2000

SegID: 0406 Black Bayou
From the Louisiana State Line in Cass County to FM 96 in Cass County

depressed dissolved oxygen 5b 2002

SegID: 0407 James' Bayou
From the Louisiana State Line in Marion County to Club Lake Road northwest of Linden in Cass County

depressed dissolved oxygen 5b 2000

SegID: 0409 Little Cypress Bayou (Creek)
From the confluence of Big Cypress Creek in Harrison/Marion County to a point 1.0 km (0.6 miles) upstream of FM 2088 in Wood County

depressed dissolved oxygen 5b 2000

SegID: 0501B Little Cypress Bayou (unclassified water body)
From the confluence with the Sabine River to the headwaters west of Reese in Orange County.

depressed dissolved oxygen 5c 2006

SegID: 0502A Nichols Creek (unclassified water body)
From the confluence of the Sabine River to the upstream perennial portion of the stream south of Kirbyville in Newton and Jasper Counties

depressed dissolved oxygen 5c 2002

SegID: 0502E Cypress Creek (unclassified water body)
From the confluence of Sabine River upstream to headwaters 2.5 miles northeast of Buna in Jasper County

depressed dissolved oxygen 5b 2010

SegID: 0505B Grace Creek (unclassified water body)
Perennial stream from the confluence with the Sabine River up to FM 1844 in Gregg County

depressed dissolved oxygen 5c 2000

SegID: 0505G Wards Creek (unclassified water body)
From the confluence with Hatley Creek to the headwaters east of Hallsville in Harrison County

depressed dissolved oxygen 5c 2000

SegID: 0506A Harris Creek (unclassified water body)
From the confluence of the Sabine River northeast of Winona in Smith County to the upstream perennial portion of the stream east of Tyler in Smith County

depressed dissolved oxygen 5b 2000

SegID: 0508 Adams Bayou Tidal
From the confluence with the Sabine River in Orange County to a point 1.1 km (0.7 miles) upstream of IH 10 in Orange County

depressed dissolved oxygen 4a 1996

SegID: 0508A Adams Bayou Above Tidal (unclassified water body)
From a point 1.1 km (0.7 miles) upstream of IH 10 in Orange County to the upstream perennial portion of the stream northwest of Orange in Orange County

depressed dissolved oxygen 4a 2000

SegID: 0508B Gum Gully (unclassified water body)
From the confluence of Adams Bayou to the upstream perennial portion of the stream northwest of Orange in Orange County

depressed dissolved oxygen 4a 2000

SegID: 0508C Hudson Gully (unclassified water body)
From the confluence with Adams Bayou to the headwaters near US 890 in Pinehurst in Orange County

depressed dissolved oxygen 4a 2002

SegID: 0511 Cow Bayou Tidal
From the confluence with the Sabine River in Orange County to a point 4.8 km (3.0 miles) upstream of IH 10 in Orange County

depressed dissolved oxygen 4a 2000

SegID: 0511A Cow Bayou Above Tidal (unclassified water body)
From a point 4.8 km (3.0 miles) upstream of IH 10 in Orange County to the upstream perennial portion of the stream northeast of Vidor in Orange County

depressed dissolved oxygen 5a 2000

SegID: 0604D Piney Creek (unclassified water body)
From the confluence of the Neches River at the Polk/Tyler/Angelina County lines east of Corrigan to the upstream perennial portion of the stream east of Crockett in Houston County

depressed dissolved oxygen 5c 2004

SegID: 0604M Biloxi Creek (unclassified water body)
From the confluence with the Neches River southeast of Diboll to FM 325 east of Lufkin in Angelina County

depressed dissolved oxygen 5c 2006

SegID: 0605A Kickapoo Creek in Henderson County (unclassified water body)
From the confluence of Lake Palestine east of Brownsboro in Henderson County to the upstream perennial portion of the stream northeast of Murchison in Henderson County

depressed dissolved oxygen 5c 2006

SegID: 0606 Neches River Above Lake Palestine
Neches River Above Lake Palestine - from a point 2.2 kilometers (1.4 miles) downstream of SH 31 [6.7 kilometers (4.2 miles) downstream of FM 279] in Henderson/Smith County to Rhines Lake Dam in Van Zandt County

depressed dissolved oxygen 5c 2004

SegID: 0607 Pine Island Bayou
From the confluence with the Neches River in Hardin/Jefferson County to FM 787 in Hardin County

depressed dissolved oxygen 5b 2000

SegID: 0607A Boggy Creek (unclassified water body)
From the confluence of Pine Island Bayou upstream to the confluence with an unnamed tributary 4 km downstream of the crossing of the Southern Pacific Railroad.

depressed dissolved oxygen 5b 2000

SegID: 0607B Little Pine Island Bayou (unclassified water body)
From the confluence of Pine Island Bayou southwest of Lumberton in Hardin County to the upstream perennial portion of the stream west of Kountze in Hardin County

depressed dissolved oxygen 5b 2000

SegID: 0607C Willow Creek (unclassified water body)
From the confluence of Pine Island Bayou north of Nome in Jefferson County to the upstream perennial portion of the stream east of Devers in Liberty County

depressed dissolved oxygen	5b	2000

SegID: 0608C Cypress Creek (unclassified water body)
From the confluence of Village Creek (0608) east of Kountze in Hardin County to the confluence with Bad Luck Creek northwest of Kountze in Hardin County

Depressed dissolved oxygen	5b	2006

SegID: 0608E Mill Creek in Hardin County (unclassified water body)
From the confluence of Village Creek (0608) west of Silsbee in Hardin County upstream to headwaters northwest of Silsbee in Hardin County

depressed dissolved oxygen	5c	2006

SegID: 0615 Angelina River/Sam Rayburn Reservoir
The riverine portion of Sam Rayburn Reservoir from a point 5.6 kilometers (3.5 miles) upstream of Marion's Ferry to the aqueduct crossing 1.0 kilometer (0.6 mile) upstream of the confluence of Paper Mill Creek

depressed dissolved oxygen	5b	2002

SegID: 0804G Catfish Creek (unclassified water body)
Twenty mile stretch of Catfish Creek running upstream from US 287 in Anderson Co., to Catfish Creek Ranch Lake just upstream of SH 19 in Henderson County:

depressed dissolved oxygen	5b	2006

Project Narrative

Problem/Need Statement

Numerous waterbodies in East Texas have been placed on the 2012 Texas Integrated Report for dissolved oxygen and nutrient impairments. While forests produce the cleanest water of any land use, improperly conducted operations can contribute to water quality declines, making it critical to implement silvicultural best management practices (BMPs). The TSSWCB is the lead agency for planning, implementing, and managing programs for preventing agricultural and silvicultural nonpoint source pollution, and collaborates with TFS to target NPS pollution resulting from forest operations. TFS coordinates with TFA, TLC, and numerous organizations to implement the agency's water resources program.

In other parts of the state, water resource issues may be mitigated by applying many of the concepts, principles, and experience that TFS has gained over the past two decades in addressing water issues in East Texas. Sound land stewardship, conservation planning, and riparian management are potential solutions to water quality concerns in Central Texas. Urban forests can reduce stormwater runoff and improve water quality in streams and bayous in metropolitan areas. Coastal forest restoration and management can improve waters in the Gulf of Mexico. Wildfire prevention and recovery efforts continue to be critical focal points for water resource protection. Non-traditional partnerships are necessary to develop innovative solutions to address complex water resource issues across the state.

Several of the waterbodies mentioned above already have approved TMDLs (Adams and Cow Bayou), Implementation Plans (Lake O' the Pines) or Watershed Protection Plans (Plum Creek, Lampasas River, Geronimo Creek). Other waterbodies have plans currently in development (Attoyac Bayou, Cedar Creek, Double Bayou, Leon River, and Upper Llano River) to address their impairment or threat. In coordination with these efforts, TFS will conduct training, education, and outreach programs that promote land stewardship, BMP implementation, and water resource protection in these priority watersheds. To measure the effectiveness of the educational component of this project in East Texas, TFS will also monitor BMP implementation on forest operations. Lastly, TFS will continue to participate and support plan development for these priority areas. The efforts of this project will play an integral role in ensuring that an improvement in water quality is achieved.

Past TFS projects funded by TSSWCB (12-03 and 08-03) have resulted in significant gains in land stewardship and water resource protection in Central Texas. For example, soil erosion control guidance has now been developed to help prevent further site degradation following wildfires. Riparian educational programs for landowners and stewardship training workshops for land contractors are also very effective outreach methods. These projects have also led to the tremendous success TFS and TSSWCB have achieved in mitigating silvicultural NPS pollution in East Texas.

The continuation of a strong, statewide presence through education, training, outreach and demonstration is necessary. This is especially important given the rate at which land is transferred to new owners, many of which may be unaware of BMPs. BMP implementation evaluations are the best measure of success for the non-regulatory program. This project will continue to offer educational programs to numerous audiences, including absentee landowners. A comprehensive approach with continuing interagency coordination and public involvement will also be crucial.

Project Narrative

General Project Description (Include Project Location Map)

This project will minimize impacts to water quality from silvicultural NPS pollution by providing technical assistance, education, outreach, and training on BMPs. Project activities will be coordinated with numerous cooperators to help ensure project success. It will also aim to address water resource issues throughout the state, drawing largely on the principles, concepts, and experience gained over the past 25 years in mitigating NPS pollution in East Texas.

Results from BMP implementation monitoring provide a clear assessment of project effectiveness, as well as identify where future efforts should be targeted. Based on previously conducted monitoring, focused BMP workshops have been developed. As a result, BMP implementation in these areas has improved. This monitoring program will track voluntary BMP implementation by conducting 150 assessments of randomly selected silvicultural operations.

Sediment and nutrient load reduction methods will be investigated to determine the most appropriate approach to quantify the effectiveness of silvicultural BMPs. A project between the Southern Group of State Foresters (SGSF) and Virginia Tech shows promise. Other possibilities include computer models such as APEX or SWAT. The Forest Land Erosion Evaluation for East Texas methodology, developed by George Dissmeyer, USDA Forest Service, will be used if the other approaches don't work. The results of this methodology are derived from a comparison of estimated sedimentation, assuming current levels of BMP implementation, compared to zero levels. This method draws from average erosion rates and recovery periods for various soil disturbances developed by Dissmeyer using the Modified Universal Soil Loss Equation on over 9,000 silvicultural sites in the South.

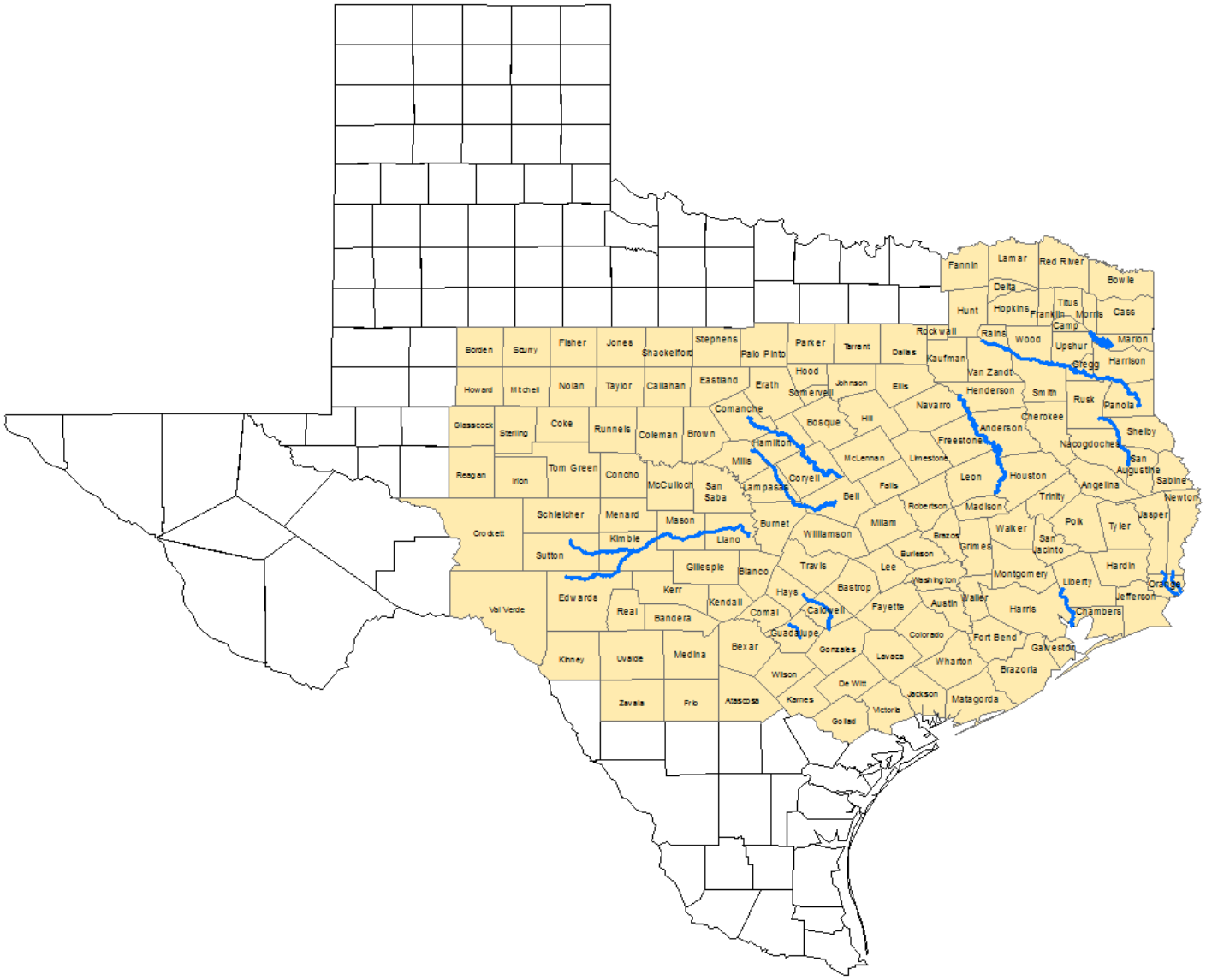
Educational programs will also be an integral part of this project. A minimum of 3 BMP training workshops and 3 BMP education workshops per year will be delivered that focus on the land stewardship, sustainable forestry, water resource protection, and BMP implementation. Local media will be used to promote project tasks, along with informative newsletters targeting landowners and natural resource professionals. This will increase communication and facilitate technology transfer between natural resource professionals, landowners, and contractors.

TFS will offer technical assistance to varying interest groups. "Courtesy exams" will be piloted in which foresters provide technical assistance on BMPs during active forest operations. This approach can identify potential problem areas and offers remediation advice while the contractor is still on site, saving both time and money. A non-technical, forestry BMP pocket guide will be developed, making it easier for landowners to understand basic BMP principles. Water resource protection demonstrations will be installed on a property owned by TFS in Smithville, providing Central Texas landowners and contractors with an opportunity to view applicable BMPs firsthand. TFS will continue cooperating with the proposed Texas Water Resources Institute/TSSWCB project "*Statewide Delivery of Riparian and Ecosystem Education Program II*," helping landowners understand the importance of riparian restoration and management. These types of interactions are vital to increasing BMP implementation and protecting water resources.

A major focus of this project will be on priority watersheds. TFS will help facilitate the education, outreach, training, and monitoring outlined in TMDL Implementation and Watershed Protection Plans. In addition to focusing efforts on impaired watersheds, this project will also take a proactive approach at addressing emerging issues. Land stewardship in Central Texas is imperative due to the explosive population growth this area is experiencing. Staff will actively participate in water resource meetings throughout the region to ensure the protection of water resources. Education, outreach, and technical assistance will be delivered to landowners and managers. Based on current weather forecasts, extended drought is predicted throughout the state, substantially increasing the risk of devastating wildfires. Rehabilitating these charred landscapes prior to substantial rainfall is critical to prevent impacts to water resources.

The TFS will lead and coordinate this project. TFS will continue to host the wetland BMP coordinating committee and will be an active participant in the SGSF Water Resources committee and four- state BMP meeting. Non-traditional partnerships (TX Rural Water Association) will be enhanced, resulting in improved water resource protection.

Figure 1: Project Location Map



Objectives and Schedules						
Task 1	Project Administration					
Costs	Federal	$22,960	Non-Federal	$16,357	Total	$39,317
Objective	To effectively administer, coordinate and monitor all work performed under this project including technical and financial supervision and preparation of status reports.					
Subtask 1.1	TFS will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15th of January, April, July and October. QPRs shall be distributed to all Project Partners.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 1.2	TFS will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 1.3	TFS will host coordination meetings or conference calls, at least quarterly, with Project Partners to discuss project activities, project schedule, communication needs, deliverables, and other requirements. TFS will develop lists of action items needed following each project coordination meeting and distribute to project personnel.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 1.4	TFS will develop a Final Report that summarizes activities completed and conclusions reached during the project and discusses the extent to which project goals and measures of success have been achieved.					
	Start Date	Month 33	Completion Date	Month 39		
Deliverables	• QPRs in electronic format • Reimbursement Forms and necessary documentation in hard copy format • Final Report in electronic and hard copy formats					

Tasks, Objectives and Schedules						
Task 2	Education, Training, and Outreach					
Costs	Federal	$91,840	Non-Federal	$65,428	Total	$157,268
Objective	To increase water resource / NPS pollution / BMP / and riparian forest awareness to landowners, natural resource professionals, and the general public in Texas. Specifically, TFS will focus on the following priority watersheds: Lake O' the Pines, Adam's and Cow Bayou, Attoyac Bayou, Middle Trinity River Basin, Cedar Bayou, Lampasas River, Plum Creek, Geronimo Creek, Upper Llano River, and Leon River.					
Subtask 2.1	TFS, in cooperation with project partners, will conduct a minimum of 3 BMP training workshops for loggers, foresters, and landowners per year for the promotion of conservation practices. Trainings may include, but are not limited to, core logger BMP workshops, forest road BMP workshops, stream crossing BMP workshops, and other appropriate workshops that promote BMP implementation.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 2.2	TFS will publish quarterly newsletters (4/year) to forest landowners (*Texas Water Source*) in select priority watersheds and natural resource professionals (*Forest Stewardship Briefings*) across the state providing information on sustainable forestry and water resource protection. TSSWCB must approve all project-related content in any informational materials and promotional publications prior to distribution					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 2.3	TFS, in cooperation with project partners, will coordinate a minimum of 3 landowner workshops per year to promote sustainable forestry, water resource protection, and riparian management.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 2.4	TFS will develop and provide educational information to absentee forest landowners and general public on sustainable forestry, water resource protection, and riparian management through activities that may include, but are not limited to, annual out of state, absentee landowner newsletter (*Forest Landowner Briefings*), project blog, presentations at landowner association meetings, TexasForestInfo.com, and appropriate use of social media (i.e., Facebook). TSSWCB must approve all project-related content in any informational materials and promotional publications prior to distribution.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 2.5	TFS will participate and display educational exhibits at relevant meetings, conferences, and educational events.					
	Start Date	Month 1	Completion Date	Month 39		
Deliverables	• Conduct three BMP training workshops per year • Publish quarterly newsletters • Conduct three landowner workshops per year • Educational materials for absentee landowners • List of events where TFS exhibit was displayed					

Tasks, Objectives and Schedules						
Task 3	Technical Assistance and Demonstration					
Costs	Federal	$114,799	Non-Federal	$81,785	Total	$196,584
Objective	To provide technical assistance to foresters, landowners, contractors, and other interested groups on the water resource protection.					
Subtask 3.1	TFS will develop a pilot site visit protocol for providing technical assistance to planned and active forest operations. Conduct 15 site visits in priority watersheds in East Texas with a follow up BMP evaluation upon completion of the operation.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 3.2	TFS will deliver technical assistance on Texas BMP guideline interpretation and implementation during monitoring evaluations to landowners, foresters, and contractors with an emphasis on the priority watersheds.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 3.3	Establish water resource protection demonstrations on TFS managed property near Smithville.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 3.4	Develop and distribute a non-technical forestry BMP pocket guide designed for landowners.					
	Start Date	Month 1	Completion Date	Month 39		
Deliverables	• Include and engage landowners, foresters, or loggers on a minimum of 30 monitoring evaluations • Conduct 15 site visits of active forest operations in East Texas and produce summary report • Install three water resource protection demonstrations with appropriate signage • Map and photographs of water resource protection demonstrations • Forestry BMP pocket guide					

Tasks, Objectives and Schedules						
Task 4	Evaluating Forest Operations for BMP Implementation					
Costs	Federal	$114,799	Non-Federal	$81,786	Total	$196,585
Objective	To assess the voluntary adoption of Texas' recommended BMPs by forest landowners, managers, and contractors and quantify resulting load reductions.					
Subtask 4.1	TFS will identify silvicultural operations in East Texas using Remote Sensing technology to randomly select for BMP implementation monitoring.					
	Start Date	Month 16	Completion Date	Month 34		
Subtask 4.2	TFS will conduct 150 BMP implementation evaluations on tracts in East Texas that meet suitability criteria.					
	Start Date	Month 20	Completion Date	Month 38		
Subtask 4.3	TFS will prepare and distribute a BMP Implementation Monitoring Report to landowners and other interested entities.					
	Start Date	Month 37	Completion Date	Month 39		
Subtask 4.4	TFS will include an interactive summary of BMP monitoring results on TexasForestInfo.com.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 4.5	TFS will investigate appropriate methods to quantify sediment and nutrient load reductions resulting from BMP implementation. The Forest Land Erosion Evaluation for East Texas methodology will be used if other suitable alternatives are not found.					
	Start Date	Month 1	Completion Date	Month 39		
Deliverables	• Identify a minimum of 600 forest operations to select from for potential monitoring • Conduct 150 BMP implementation evaluations • BMP Implementation Monitoring Report • TexasForestInfo.com interactive summary of monitoring results • Load reductions resulting from BMP implementation					

Tasks, Objectives and Schedules						
Task 5	Stewardship and Water Resource Protection – Urban and Central Texas Operations					
Costs	Federal	$91,840	Non-Federal	$65,428	Total	$157,268
Objective	To increase stewardship, water resource protection, and BMP awareness to landowners, natural resource professionals, municipalities, and the general public on emerging issues.					
Subtask 5.1	TFS will promote land stewardship in Central Texas through education, outreach, and technical assistance. Activities may include, but are not limited to, stewardship planning, riparian restoration, stewardship training, vegetation management, and other appropriate outreach methods.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 5.2	TFS will promote sound watershed management during fuel mitigation and wildfire rehabilitation operations through education, outreach, and technical assistance. TSSWCB must approve all project-related content in any informational materials and promotional publications prior to distribution.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 5.3	TFS will promote the link between forests and water resources. Activities may include, but are not limited to, forest-water utility partnership meetings, coastal forest management, urban forest watershed management, ecosystem services, and other appropriate related outreach efforts.					
	Start Date	Month 1	Completion Date	Month 39		
Deliverables	• Conduct 3 land contractor training workshops • Conduct two training workshops to TFS personnel performing fuel mitigation operations • Educational materials including brochures, factsheets, and technical guides • Conduct two partnership meetings focused on the forest – water connection • List of water resource meetings attended					

Tasks, Objectives and Schedules						
Task 6	Collaboration with Local, State, and Regional Partners					
Costs	Federal	$22,960	Non-Federal	$16,357	Total	$39,317
Objective	To effectively coordinate project activities with natural resource agencies and project participants					
Subtask 6.1	TFS will host annual Wetland / BMP coordinating committee meetings.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 6.2	TFS will work with local media which may include but not limited to, cooperating agency publications, trade magazines, newspaper, and other appropriate means to promote project activities.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 6.3	TFS will participate and assist in the coordination of the Four State Forestry BMP conference. This meeting is conducted biennially and brings together a broad group of stakeholders from Arkansas, Louisiana, Oklahoma, and Texas.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 6.4	TFS will actively participate in the Southern Group of State Foresters Water Resources Committee.					
	Start Date	Month 1	Completion Date	Month 39		
Subtask 6.5	TFS will attend and participate in meetings in order to communicate and coordinate project goals, activities, and accomplishments to interested parties. Such meetings may include, but not limited to, Clean Rivers Program Basin steering committees, TMDL and Watershed Protection Plan stakeholder meetings, NPS management, SWCD meetings, professional and trade associations, and other appropriate meetings of critical watershed stakeholders groups.					
	Start Date	Month 1	Completion Date	Month 39		
Deliverables	• Agendas, meeting materials, and summaries from meetings • Host two Wetland/BMP Coordinating Committee meetings • Publish and distribute at least 4 articles per year to various local media sources • Assist in the coordination and attend 1 Four State Forestry BMP Conference. • Participate in two SGSF WRC meetings • Attend at least three watershed protection or TMDL stakeholder meetings per year					

Project Goals (Expand from Summary Page)

- To improve water quality in Texas and the 303(d)-listed segments' watersheds through the implementation of forestry BMPs, sustainable forestry practices, land stewardship, and riparian management.

- To provide effective technical assistance to landowners, contractors, natural resource professionals, and local government

- To increase the awareness and general understanding of water resource protection measures to landowners, natural resource professionals and the general public through educational workshops, training courses, media outreach, field demonstrations, and innovative technology transfer applications that encourage BMP implementation.

- To assess silvicultural BMP implementation in Texas through a statistically sound, technically defensible, and objective approach, providing a clear assessment of the effectiveness of the project's educational efforts and identifying areas to target for improvement.

- To proactively address emerging issues in forestry (Central Texas land stewardship, urban forest restoration, forest / water relationship) through education, outreach, and technical assistance in an effort to minimize impacts to water resources anticipated from predicted weather patterns and population growth.

Measures of Success (Expand from Summary Page)

Increase forestry BMP implementation
The numerous education, training, outreach, and technical assistance that will be provided throughout the course of this project will increase voluntary BMP implementation to 95%.

Increase in Load Reductions and Soil Savings
An increase to show over 90,000 tons of soil savings (erosion) and 12,000 tons of sedimentation prevention will show the success of this project. Appropriate methodologies for load reductions other than the Forest Land Erosion Evaluation for East Texas tool will be investigated for applicability, including APEX, SWAT, the SGSF/VT cooperative project, and the USDA Forest Service *i-Tree* software package.

Estimate Riparian Conservation Resulting from BMP implementation
BMP implementation, especially near streams and other waterbodies, can positively impact riparian areas and aquatic habitat. BMP monitoring data (SMZ implementation) and forest statistics will be used to estimate the area of riparian conservation resulting from the efforts of this project.

Conduct a minimum of 6 educational / training workshops per year
Delivering, high quality, effective educational / training workshops is critical to promoting BMP implementation, land stewardship, and water resource protection. Educational workshops for landowners will focus on sustainable forestry and water resource protection. Training workshops will target both traditional forestry and non-traditional land contractors and natural resource professionals. These workshops will include regular "core" BMP workshops, focused sessions on stream crossings, forest roads, streamside management zones, online refresher courses, and land stewardship.

Successful Implementation of Technical Assistance Outreach Methods
Implementing a well received and effective "courtesy exam" program, demonstration area for Central Texas conservation practices, and an easy to follow pocket guide to forestry BMPs for landowners will lead water resource protection.

2012 Texas NPS Management Program **Reference (Expand from Summary Page)**
Components, Goals, and Objectives
Component 1 – Explicit short- and long-term goals, objectives and strategies that protect surface and groundwater LTG: Protect and restore water quality from NPS pollution through assessment, implementation and education Objectives 1. Focus NPS abatement efforts, implementation strategies, and available resources in watersheds identified as impacted by NPS pollution. 2. Support the implementation of state, regional, and local programs to prevent NPS pollution through assessment, implementation, and education. 3. Support the implementation of state, regional, and local programs to reduce NPS pollution, such as the implementation of strategies defined in state-approved TMDL Implementation Plans and Watershed Protection Plans. 7. Increase overall public awareness of NPS issues and prevention activities. STG Three: Education: Conduct education and technology transfer activities to increase awareness of NPS pollution and activities which contribute to the degradation of waterbodies, including aquifers, by NPS. Objectives A. Enhance existing outreach programs at the state, regional, and local levels to maximize the effectiveness of NPS education. B. Administer programs to educate citizens about water quality and their potential role in causing NPS pollution. C. Expedite development of technology transfer activities to be conducted to increase BMP implementation D. Implement public outreach and education to maintain and restore water quality in waterbodies impacted by NPS pollution.
Component 2 – Working partnerships and linkages to appropriate State, interstate, Tribal, regional, and local entities, private sector groups, and Federal agencies.
Component 3 – Balanced approach that emphasizes both statewide NPS programs and on-the-ground management of individual watersheds
Component 6 – Implement all NPS program components required by CWA 319(b) and establish flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practical

Estimated Load Reductions Expected (Only applicable to Implementation Project Type)
The education, outreach, training, and technical assistance components of this project will result in increased forestry BMP implementation in East Texas (primarily improved forest roads, stream crossings, and streamside management zones) resulting in substantial sediment load reductions. New methodologies (APEX, SWAT) will be investigated to determine the applicability of quantifying sediment and nutrient load reductions resulting from forestry BMP implementation. A cooperative project supported by the Southern Group of State Foresters with Virginia Tech looks promising. If this or other methodologies are not feasible, the Forest Land Erosion Evaluation Tool for East Texas will be used. Using the latter approach, it is anticipated that the adoption of forestry BMPs will result in the following pollutant load reductions be: • 12,000 tons prevented from entering East Texas streams, lakes, and rivers • 90,000 tons prevented from eroding from East Texas forestlands Other methodologies for determining load reductions outside of East Texas will also be investigated. The *i-Tree* software, created by the USDA Forest Service, may be able to determine load reductions resulting from increases in urban forest canopy.

EPA State Categorical Program Grants – Workplan Essential Elements ***FY 2011-2015 EPA Strategic Plan* Reference**
Strategic Plan Goal – Goal 2 Protecting America's Waters
Strategic Plan Objective – Objective 2.2 Protect and Restore Watersheds and Aquatic Ecosystems

Part III – Financial Information

Budget Summary

Federal	$ 459,198	% of total project	58%
Non-Federal	$ 327,141	% of total project	42%
Total	$ 786,339	Total	100%

Category	Federal	Non-Federal	Total
Personnel	$ 249,600	$ 215,025	$ 464,625
Fringe Benefits	$ 82,368	$ 0	$ 82,368
Travel	$ 14,856	$ 0	$ 14,856
Equipment	$ 0	$ 0	$ 0
Supplies	$ 12,246	$ 0	$ 12,246
Contractual	$ 0	$ 0	$ 0
Construction	$ 0	$ 0	$ 0
Other	$ 40,233	$ 0	$ 40,233
Total Direct Costs	$ 399,303	$ 215,025	$ 614,328
Indirect Costs	$ 59,895	$ 60,207	$ 120,102
Unrecovered IDC	$ 0	$ 51,909	$ 51,909
Total Project Costs	$ 459,198	$ 327,141	$ 786,339

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel	$ 249,600	TFS Water Resources Forester (1.30 FTE @ $44,000/year) TFS Biologist (0.50 FTE @ $52,000/year)
Fringe Benefits	$ 82,368	Fringe benefits are estimated at 33% of federal personnel costs
Travel	$ 14,856	Travel in-state - $12,576 (8 trips per year x 4 staff x $131/trip per diem x 3 years). Per diem consists of $85 per night lodging + $46 per night meals. Out of state travel – $2,280 (3 total trips @ $760 per trip. Average estimated expenses per trip are as follows: meals- $150, registration - $100, lodging - $260, and travel - $250) • SGSF WRC Annual Meeting (3 trips for coordinator)
Equipment	$ 0	N/A
Supplies	$ 12,246	*Office supplies - $2,766* - Paper: $966 (paper @ $38/box x 21 boxes; various size envelopes @ $14/box x 12 boxes) - Janitorial: $900 (toilet paper @ $1.50/roll x 240 rolls; paper towels @ $2/roll x 180 rolls, trash bags @ $14/box x 9 boxes; hand soap at $18/gal x 3 gallons) - Calendars: $300 ($20/planner x 5 planners/yr x 3 yrs) - Miscellaneous: $600 (note pads, post it notes, paper clips, staples, pencils, pens, tape, batteries, folders, binders @ $200/yr) *Computer related supplies - $4,480* - Hardware: $1,750 (1 laptop computer / docking stations @ $1,750) - Software: $375 (ArcView license - $25/yr x 3 yrs x 5 computers) - Ink: $2,280 (Color Laser @ $200/cartridge x 2 cartridges/yr x 3 yrs; Inkjet @ $45/cartridge x 2 cartridges/printer/yr x 4 printers x 3 yrs) - Data Storage: $75 (3 50-pack DVD-R spindles @ $25/each) *Demonstration area (supplies, materials, signage) - $5,000* Designate Riparian Area - $300 (flagging, paint, machetes) Stabilize Pond Spillway / Road - $2,000 (fuel, geotextile, rock base, seed) Install low water crossing - $2,000 (fuel, geotextile/web, rock base, seed) Signs - $700 (posts, printed metal signs, quikrete)
Contractual	$ 0	N/A
Construction	$ 0	N/A
Other	$ 40,233	Newsletters - $8,625 (12 TWS @ $575/newsletter; 3 FLB @ $575/newsletter) Professional reports - $1,500 (200 Implementation Monitoring printed/mailed) Postage - $4,200 (postage @ $1,400/year for 3 years) Educational/Technical Assistance materials - $1,500 (printing, website) Mileage (maintenance and repair) and fuel expenses - $16,308 Employee Training – $6,600 ($550/employee/year x 4 employees x 3 years) Facility / vehicle rental - $1,500 (rental of training facilities, vehicles to attend meetings/workshops)
Indirect	$ 59,895	Recovered indirect cost (15%) of total direct federal costs.

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel	$ 215,025	TFS Program Coordinator, Water Resources (0.2 FTE @ $70,000/year) TFS Water Resources Forester (1.45 FTE @ $39,776/year)
Fringe Benefits	$ 0	N/A
Travel	$ 0	N/A
Equipment	$ 0	N/A
Supplies	$ 0	N/A
Contractual	$ 0	N/A
Construction	$ 0	N/A
Other	$ 0	
Indirect	$ 60,207	TAMU system indirect cost @ 28% = $60,207
Unrecovered IDC	$ 51,909	Unrecovered federal indirect cost @ 13% = $51,909